

Name: ID:

Email:

Right Triangles Unit Test

Multiple Choice

Identify the choice that best completes the statement or answers the question.

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1. Which set of numbers can represent the side lengths of a right triangle?

- a. 8, 12, 15 c. 12, 20, 25
b. 10, 24, 26 d. 15, 18, 20

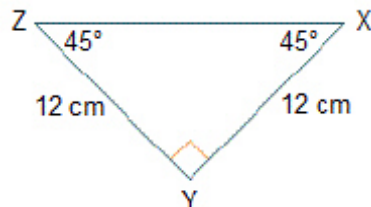
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2. Which classification best represents a triangle with side lengths 6, 10, and 12?

- a. acute, because $6^2 + 10^2 < 12^2$ c. obtuse, because $6^2 + 10^2 < 12^2$
b. acute, because $6 + 10 > 12$ d. obtuse, because $6 + 10 > 12$

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3. Each leg of a $45^\circ - 45^\circ - 90^\circ$ triangle measures 12 cm. What is the length of the hypotenuse?



- a. 6 cm c. 12 cm
b. $6\sqrt{2}$ cm d. $12\sqrt{2}$ cm

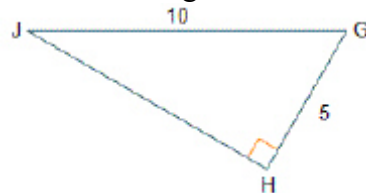
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4. The hypotenuse of a $45^\circ - 45^\circ - 90^\circ$ triangle measures 18 cm. What is the length of one leg of the triangle?

- a. 9 cm c. 18 cm
b. $9\sqrt{2}$ cm d. $18\sqrt{2}$ cm

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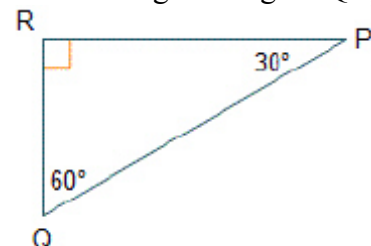
5. Consider triangle GHJ. What is the length of line segment HJ?



- a. 5 c. 10
b. $5\sqrt{3}$ d. $10\sqrt{3}$

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6. Given the right triangle PQR, which represents the value of $\sin(P)$?



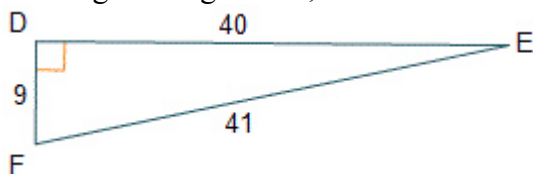
a. $\frac{RP}{RQ}$

c. $\frac{RQ}{PQ}$

b. $\frac{RP}{PQ}$

d. $\frac{RQ}{PR}$

7. Given right triangle DEF, what is the value of $\tan(F)$?



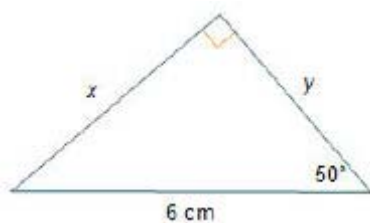
a. $\frac{9}{41}$

c. $\frac{40}{9}$

b. $\frac{40}{41}$

d. $\frac{41}{9}$

8. What is the value of x ?



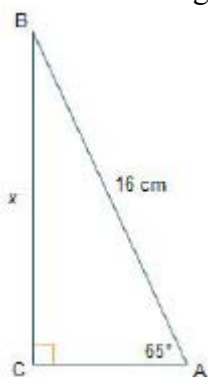
a. 3.1 cm

c. 4.6 cm

b. 3.9 cm

d. 5.4 cm

9. What is the length of BC?



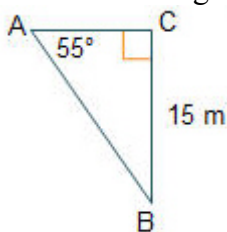
a. 6.8 cm

c. 14.5 cm

b. 7.5 cm

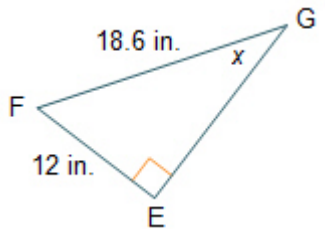
d. 17.7 cm

10. What is the length of AC?



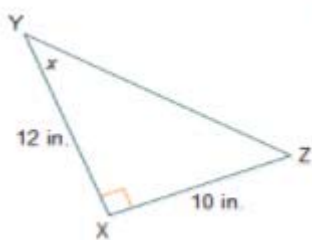
- a. 10.5 m
- b. 12.3 m
- c. 18.3 m
- d. 21.4 m

11. Which is the best approximation for the measure of angle EGF?



- a. 32.8°
- b. 40.2°
- c. 49.8°
- d. 57.2°

12. Which is the best approximation for the measure of angle XYZ?

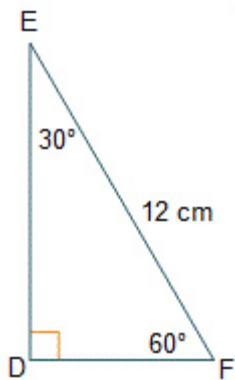


- a. 33.6°
- b. 39.8°
- c. 50.2°
- d. 56.4°

Multiple Response

Identify one or more choices that best complete the statement or answer the question.

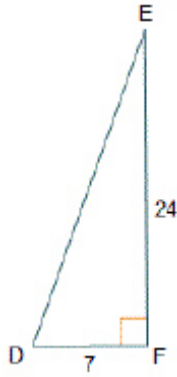
13. The length of Segment EF is 12 cm. Which statements regarding triangle DEF are correct? Check all that apply.



- | | |
|---|--|
| <input type="checkbox"/> EF is the longest side of triangle DEF | <input type="checkbox"/> $DF = 4\sqrt{3}$ cm |
| a. | d. |
| <input type="checkbox"/> $DF = 6$ cm | <input type="checkbox"/> $DE = 6\sqrt{3}$ cm |
| b. | e. |
| <input type="checkbox"/> $DE = 12\sqrt{3}$ cm | |
| c. | |

14.

Which trigonometric ratios are correct for triangle DEF? Check all that apply.



☐ $\sin(D) = \frac{24}{25}$

a.

☐ $\cos(E) = \frac{7}{25}$

b.

☐ $\tan(D) = \frac{24}{7}$

c.

☐ $\sin(E) = \frac{7}{25}$

d.

☐ $\tan(D) = \frac{7}{24}$

e.

Short Answer

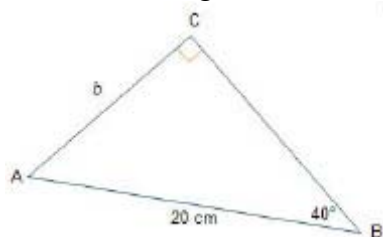
15. Two sides of an obtuse triangle are 12 and 14. The longest side is 14. What is the greatest possible whole-number length of the unknown side?

16. Two sides of an obtuse triangle measure 10 inches and 15 inches. The length of the longest side is unknown. What is the smallest possible whole-number length of the unknown side?

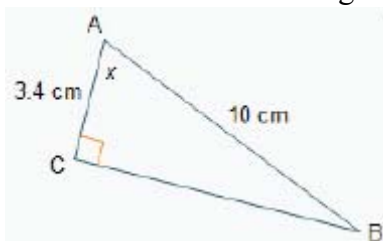
17. Using the side lengths of triangle PQR, which angle has a sine ratio of $\frac{4}{5}$?

18.

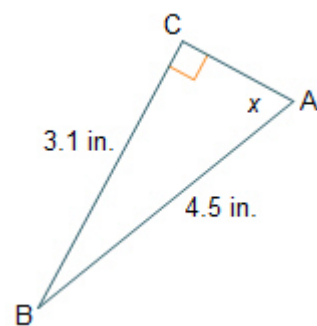
What is the length of AC? Round to the nearest tenth.



19. What is the measure of angle BAC? Round to the nearest tenth.



20. What is the measure of angle BAC? Round to the nearest tenth.



21. **Bonus Question:** What is an isometry?

